CLAIMS

What is claimed is:

1. A method of enhancing paracellular permeability at an absorption site in a subject, the method comprising:

a) administering an effective amount of a phospholipase C inhibitor to a subject at a time in which enhanced paracellular permeability is desired; and

b) enhancing paracellular permeability in the subject at the absorption site through the administering of the effective amount of the phospholipase C inhibitor.

2. The method of claim 1, wherein the phospholipase C inhibitor is selected from the group consisting of an alkylphosphocholine, a 3-nitrocoumarin or derivative thereof, a 3-cyanocoumarin or derivative thereof, a 3-halocoumarin or derivative thereof, a 3-acetoxycoumarin or derivative thereof, a coumarin-3-sulfonic acid or derivative thereof, and an N-alkylsuccinimido steroid derivative.

3. The method of claim 2, wherein the alkylphosphocholine further comprises an alkyl chain of ten to twenty methylene groups.

4. The method of claim 2, wherein the 3-halocoumarin is 3-fluorocoumarin or derivative thereof, 3-chlorocoumarin or derivative thereof, or 3-iodocoumarin or derivative thereof.

5. The method of claim 2, wherein the N-alkylsuccinimido steroid derivative comprises an alkyl chain of one to ten methylene groups.

6. The method of claim 1, wherein the absorption site comprises intestinal epithelium.

7. The method of claim 1, wherein the absorption site comprises the blood brain barrier.

8. The method of claim 1, wherein the phospholipase C inhibitor is formulated for oral, buccal, rectal or transdermal administration, or in a form suitable to contact colonic epithelium, or in a form suitable for administration by inhalation or insufflation.

9. A method of enhancing absorption of a hydrophilic drug in a subject, the method comprising administering an effective amount of a phospholipase C inhibitor to the subject at a time prior to or in conjunction with administering the hydrophilic drug to the subject, whereby enhanced paracellular permeability is produced at an absorption site in the subject; and enhancing absorption of the hydrophilic drug at the absorption site in the subject through the administering of the effective amount of the phospolipase C inhibitor.

10. The method of claim 9, wherein the phospholipase C inhibitor is selected from the group consisting of an alkylphosphocholine, a 3-nitrocoumarin or derivative thereof, a 3-cyanocoumarin or derivative thereof, a 3-halocoumarin or derivative thereof, a 3-acetoxycoumarin or derivative thereof, a coumarin-3-sulfonic acid or derivative thereof, and an N-alkylsuccinimido steroid derivative.

11. The method of claim 10, wherein the alkylphosphocholine further comprises an alkyl chain of ten to twenty methylene groups.

12. The method of claim 10, wherein the 3-halocoumarin is 3-fluorocoumarin or derivative thereof, 3-chlorocoumarin or derivative thereof, or 3-iodocoumarin or derivative thereof.

13. The method of claim 10, wherein the N-alkylsuccinimido steroid derivative comprises an alkyl chain of one to ten methylene groups.

14. The method of claim 9, wherein the absorption site comprises intestinal epithelium.

15. The method of claim 9, wherein the absorption site comprises the blood brain barrier.

16. The method of claim 9, wherein the phospholipase C inhibitor is formulated for oral, buccal, nasal, rectal or transdermal administration, or in a form suitable to contact colonic epithelium, or in a form suitable for administration by inhalation or insufflation.

17. A composition comprising:

a) a hydrophilic drug;

b) a phospholipase C inhibiting amount of a phospholipase C inhibitor; and

c) a pharmaceutically acceptable carrier.

18. The composition of claim 17, wherein the phospholipase C inhibitor is selected from the group consisting of an alkylphosphocholine, a 3-nitrocoumarin or derivative thereof, a 3-cyanocoumarin or derivative thereof, a 3-halocoumarin or derivative thereof, a 3-acetoxycoumarin or derivative thereof, a coumarin-3-sulfonic acid or derivative thereof, and an N-alkylsuccinimido steroid derivative.

19. The composition of claim 18, wherein the alkylphosphocholine further comprises an alkyl chain of ten to twenty methylene groups.

20. The method of claim 18, wherein the 3-halocoumarin is 3-fluorocoumarin or derivative thereof, 3-chlorocoumarin or derivative thereof, or 3-iodocoumarin or derivative thereof.

21. The method of claim 18, wherein the N-alkylsuccinimido steroid derivative comprises an alkyl chain of one to ten methylene groups.

22. A method of preparing a composition that facilitates oral availability of a hydrophilic drug to a subject in need thereof, the method comprising:

a) providing a hydrophilic drug;

b) providing a phospholipase C inhibitor; and

c) mixing the hydrophilic drug and a phospholipase C inhibiting amount of the phospholipase C inhibitor with a pharmaceutically acceptable carrier, whereby a composition that facilitates oral availability of the hydrophilic drug is prepared.

23. The method of claim 22, wherein the phospholipase C inhibitor is selected from the group consisting of an alkylphosphocholine, a 3-nitrocoumarin or derivative thereof, a 3-cyanocoumarin or derivative thereof, a 3-halocoumarin or derivative thereof, a 3-acetoxycoumarin or derivative thereof, a coumarin-3-sulfonic acid or derivative thereof, and an N-alkylsuccinimido steroid derivative.

24. The method of claim 23, wherein the alkylphosphocholine further comprises an alkyl chain of ten to twenty methylene groups.

25. The method of claim 23, wherein the 3-halocoumarin is 3-fluorocoumarin or derivative thereof, 3-chlorocoumarin or derivative thereof, or 3-iodocoumarin or derivative thereof.

26. The method of claim 23, wherein the N-alkylsuccinimido steroid derivative comprises an alkyl chain of one to ten methylene groups.

27. The method of claim 22, wherein the composition is formulated for oral, buccal, rectal or transdermal administration, or in a form suitable to contact colonic epithelium, or in a form suitable for administration by inhalation or insufflation.